

illuminate your space







## **TE Connectivity introduces the all new NEVALO SSL System Configuration Product Selection Guide**

**TE NEVALO SSL System simplifies the design process for light fixture/luminaire manufacturers.**

It is an integrated approach for developing solid-state lighting systems. The NEVALO system is a plug-and-play solution including all the components required to convert from incandescent or fluorescent lighting to solid-state (SSL) lighting design.

Using TE NEVALO methodology, this guide helps in selecting the optimum components that meet design objectives -- while avoiding the extensive engineering and qualification involved to embrace new SSL technology.



Step 1 : SELECT YOUR LED LIGHT MODULE (LLM)												
	TYP LLM Lumen (lm) (Includes Optics) LED Tc = 25 deg C	TYP LLM Lumen (lm) (Includes Optics) LED Tc = 60 deg C	LLM Dimensions	LED Type Drive Current (mA)	SSL System Budget	TYP LLM Efficacy Tc= 25 deg C (l/w)	Color Consistency (SDCM)	CRI	Beam Distribution	Distribution Beam Angle	Part Number	
Correlated Color Temperature 3000K		<b>3060</b>	<b>2790</b>	OD: 88mm H: 44.5mm	Bridgelux RS 2100mA	30	57	4	82	Narrow Flood	28	2154159-2
										Wide Flood	48	2154159-3
		<b>1330</b>	<b>1220</b>	OD: 58mm H: 16.3mm	Cree (7 XP-g) 1000mA	24	56	4	80	Spot	18	2154193-1
		<b>1150</b>	<b>1050</b>	OD: 58mm H: 16.3mm	Cree (6 XP-g) 1000mA	20	56		80	Narrow Flood	25	2154193-2
									Flood	45	2154193-3	
		<b>1050</b>	<b>970</b>	OD: 58mm H: 16.3mm	Cree (7 XP-g) 700mA	24	65		80	Spot	18	2154194-1
									Narrow Flood	25	2154194-2	
		<b>900</b>	<b>820</b>	OD: 58mm H: 16.3mm	Cree (6 XP-g) 700mA	20	65		80	Flood	45	2154194-3
									Spot	18	2154194-1	
		<b>760</b>	<b>670</b>	OD: 58mm H: 16.3mm	Cree (4 XP-g) 1000mA	14	56		80	Narrow Flood	25	2154196-2
									Flood	45	2154196-3	
		<b>620</b>	<b>560</b>	OD: 58mm H: 16.3mm	Cree (7 XP-g) 350mA	24	84		80	Spot	18	2154193-1
									Narrow Flood	25	2154193-2	
		<b>600</b>	<b>540</b>	OD: 58mm H: 16.3mm	Cree (4 XP-g) 700mA	14	65		80	Flood	45	2154193-3
									Spot	18	2154196-1	
		<b>530</b>	<b>480</b>	OD: 58mm H: 16.3mm	Cree (6 XP-g) 350mA	20	84		80	Narrow Flood	25	2154194-2
Flood	45							2154194-3				
<b>340</b>	<b>320</b>	OD: 58mm H: 16.3mm	Cree (4 XP-g) 350mA	14	84	80	Spot	18	2154196-1			
						Narrow Flood	25	2154196-2				
<b>1000</b>	<b>900</b>	49mm x 100mm	Intematix (4 C1109D) 350mA	44	72	4	80	Wide Flood	110	2154130-1		
		<b>750</b>	<b>670</b>	24mm x 100mm	Intematix (3 C1109D) 350mA	33	72	4	80	Wide Flood	110	2154129-1
<b>500</b>	<b>450</b>	24mm x 100mm	Intematix (2 C1109D) 350mA	22	72	4	80	Wide Flood	110	2154128-1		
Correlated Color Temperature 4000K		<b>3420</b>	<b>3060</b>	OD: 88mm H: 44.5mm	Bridgelux RS 2100mA	30	63	4	80	Narrow Flood	28	1-2154159-2
										Wide Flood	48	1-2154159-3
		<b>1520</b>	<b>1400</b>	OD: 58mm H: 16.3mm	Cree (7 XP-g) 1000mA	24	63	4	75	Spot	18	1-2154193-1
		<b>1300</b>	<b>1200</b>	OD: 58mm H: 16.3mm	Cree (6 XP-g) 1000mA	20	63		75	Narrow Flood	25	1-2154193-2
									Flood	45	1-2154193-3	
		<b>1200</b>	<b>1100</b>	OD: 58mm H: 16.3mm	Cree (7 XP-g) 700mA	24	75		75	Spot	18	1-2154194-1
									Narrow Flood	25	1-2154194-2	
		<b>1030</b>	<b>940</b>	OD: 58mm H: 16.3mm	Cree (6 XP-g) 700mA	20	75		75	Flood	45	1-2154194-3
									Spot	18	1-2154196-1	
		<b>860</b>	<b>780</b>	OD: 58mm H: 16.3mm	Cree (4 XP-g) 1000mA	14	63		75	Narrow Flood	25	1-2154196-2
									Flood	45	1-2154196-3	
		<b>690</b>	<b>640</b>	OD: 58mm H: 16.3mm	Cree (7 XP-g) 350mA	24	95		75	Spot	18	1-2154193-1
									Narrow Flood	25	1-2154193-2	
		<b>680</b>	<b>630</b>	OD: 58mm H: 16.3mm	Cree (4 XP-g) 700mA	14	75		75	Flood	45	1-2154193-3
									Spot	18	1-2154196-1	
		<b>590</b>	<b>540</b>	OD: 58mm H: 16.3mm	Cree (6 XP-g) 350mA	20	95		75	Narrow Flood	25	1-2154196-2
Flood	45							1-2154196-3				
<b>400</b>	<b>360</b>	OD: 58mm H: 16.3mm	Cree (4 XP-g) 350mA	14	95	75	Spot	18	1-2154194-1			
						Narrow Flood	25	1-2154194-2				
<b>1230</b>	<b>1100</b>	49mm x 100mm	Intematix (4 C1109D) 350mA	44	87	4	80	Wide Flood	110	1-2154130-1		
		<b>920</b>	<b>820</b>	24mm x 100mm	Intematix (3 C1109D) 350mA	33	87	4	80	Wide Flood	110	1-2154129-1
<b>610</b>	<b>540</b>	24mm x 100mm	Intematix (2 C1109D) 350mA	22	87	4	80	Wide Flood	110	1-2154128-1		

NOTE : Individual results may vary from the typical values

**Step 2 : SELECT YOUR DRIVER**

Driver #	Color Code Drive Current (mA)	Input Voltage	Voltage Range (V)	Power (W)	SSL System Budget	Control	Dimensions (mm) l x w x h	Part Number
1	Orange 350mA	108-132 VAC	8-25	10	8-25	Triac	159 x 59 x 28.7	2154092-1
2		108-132 VAC	18-42	15	18-42		159 x 59 x 28.7	2154093-1
3	108-132 VAC	33-55	22	33-55	159 x 59 x 28.7		2154094-1	
4	Red 700mA	108-132 VAC	8-25	18	8-25		159 x 59 x 28.7	2154095-1
5	Green 1000mA	108-132 VAC	8-25	25	8-25		159 x 59 x 28.7	2154096-1
6	Blue 2100mA	90-305 VAC	18-36	75	18-36		Fixed	190 x 65 x 35

**Step 3 : SELECT YOUR WIRING SYSTEM**

Configuration	Length	Color Code Drive Current (mA)	Part Number
<b>STL to STR</b> Straight Left to Straight Right			
<b>STL to RAD</b> Straight Left to Right Angle Down			
Single Light Modules	STL to STR	300mm	Orange 350mA
	STL to RAD	300mm	
	STL to STR	300mm	Red 700mA
	STL to RAD	300mm	
	STL to STR	300mm	Green 1000mA
	STL to RAD	300mm	
	STL to STR	300mm	Blue 2100mA
	STL to RAD	300mm	
<b>STL to FTL to FTL to TER</b> Straight Left to Feed Thru Left to Feed Thru Left to Terminator			
<b>STL to FTL to FTR to FTR to TER</b> Straight Right to Feed Thru Left to Feed Thru Right to Feed Thru Left to Feed Thru Right to Terminator			
Multiple Light Modules	STL to FTL to FTL to TER	650mm	Orange 350mA
	STL to FTL to FTR to FTR to TER	1250mm	

**Step 3A : SELECT YOUR CONNECTOR(S)**

	Color Code Drive Current (mA)	Part Number
<b>OR</b> <b>STL (Straight, Left)</b>	Orange 350mA	2154018-1
	Red 700mA	2154018-3
	Green 1000mA	2154018-4
	Blue 2100mA	2154018-6
	Orange 350mA	1-2154018-1
	Red 700mA	1-2154018-3
<b>STR (Straight, Right)</b>	Green 1000mA	1-2154018-4
	Blue 2100mA	1-2154018-6
	Orange 350mA	2154009-1
	Red 700mA	2154009-3
	Green 1000mA	2154009-4
	Blue 2100mA	2154009-6
<b>FTL (Feed-Thru, Left)</b>	Orange 350mA	1-2154009-1
	Red 700mA	1-2154009-3
	Green 1000mA	1-2154009-4
	Blue 2100mA	1-2154009-6
	Orange 350mA	2154150-1
	Red 700mA	2154150-3
<b>FTR (Feed-Thru, Right)</b>	Green 1000mA	1-2154009-4
	Blue 2100mA	1-2154009-6
	Orange 350mA	2154150-1
	Red 700mA	2154150-3
	Green 1000mA	2154150-4
	Blue 2100mA	2154150-6
<b>RAD (Right Angle Down)</b>		
<b>TER (Terminator)</b>	N/A	2154014-1

**AND**  
**Step 3B : SELECT YOUR RIBBON CABLE**

	Color Code Drive Current (mA)	Part Number
<b>3</b>	Orange 350mA	2154027-1
	Red 700mA	2154027-3
	Green 1000mA	2154027-4
	Blue 2100mA	2154027-6





\*Available in reels of 1,000 feet

**AND**  
**Step 3C : SELECT YOUR HAND TOOL KIT**

	Part Number
<b>3</b>	2161090-1




**Step 4 : SELECT YOUR THERMAL MANAGEMENT**

**HEAT SINKS**

	Heat Sink Dimensions	Part Number
 <b>LN24x100</b>	24 x 100 x 60mm	2154168-1
 <b>LN49x100</b>	49 x 100 x 60mm	2154169-1
 <b>CN58</b>	OD: 63.4mm H: 100mm	2154170-1
 <b>CN88</b>	OD: 108mm H: 200mm	2154171-1



**THERMAL TEST TOOLS**

Thermal Test Instrument	Part Number
<ul style="list-style-type: none"> <li>• Software</li> <li>• Breakout Box</li> <li>• Thermal &amp; Communication Cables</li> </ul>	2154265-1

	LED Type	CCT	Color Code Drive Current (mA)	Thermal LLM Part Number	LLM Reference Part Number
<b>Thermal LLM - Linear</b>  LN24x100 shown	Intematix	3000K	Orange 350mA	2154141-1	2154128-1
				2154142-1	2154129-1
		4000K		2154143-1	2154130-1
				1-2154141-1	1-2154128-1
		1-2154142-1		1-2154129-1	
		1-2154143-1		1-2154130-1	
<b>Thermal LLM - Circular</b>  CN58 shown  CN88 shown	Cree (4 XP-g)	3000K	Orange 350mA	2154210-1	2154196-x
		4000K		1-2154210-1	1-2154196-x
	Cree (6 XP-g)	3000K	Red 700mA	2154212-1	2154194-x
		4000K		1-2154212-1	1-2159194-x
	Cree (7 XP-g)	3000K	Green 1000mA	2154213-1	2154193-x
		4000K		1-2154213-1	1-2154193-x
	Bridgelux RS	3000K	Blue 2100mA	2154149-1	2154159-x
		4000K		1-2154149-1	1-2154159-x

**Step 5 : SELECT YOUR OPTIONAL PRODUCTS**

**REPLACEABLE OPTICS FOR CIRCULAR LED Light Module (LLM)**

Dimensions (OD)	Number of LEDs	Optic Type	Beam Distribution	Distribution Beam Angle	Part Number
 <b>OD:58mm</b>	4	TIR	Spot	18	2154165-1
			Narrow Flood	25	2154165-2
			Flood	45	2154165-3
	6		Spot	18	2154163-1
			Narrow Flood	25	2154163-2
			Flood	45	2154163-3
	7		Spot	18	2154162-1
			Narrow Flood	25	2154162-2
			Flood	45	2154162-3
 <b>OD:88mm</b>	1	Reflector	Narrow Flood	28	2154167-1
			Wide Flood	48	2154167-2

**DEVELOPMENT KITS**

	Lumens at Tc=60C	Watts	Current	Part Number
<b>Spot, Track &amp; Down Lights</b>	1050-1220	22-25	1000mA	2154245-1
	900-1050	15-17	700mA	2154387-1
	350-530	4-7	350mA	2154388-1
<b>Commercial Track, High Bay &amp; Down Lights</b>	2790	63	2100mA	2154246-1
<b>Wall Mount (Sconce)</b>	1000	15	350mA	2154244-1

**Build your NEVALO SSL System**

**Step 1 : Select your LED Light Module**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

COLOR CODE (circle one):

Orange Red Green Blue

**Step 2 : Select your Driver**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

COLOR CODE (circle one):

Orange Red Green Blue

SSL System Budget: \_\_\_\_\_

**Step 3 : Select your Cable Assembly**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

COLOR CODE (circle one):

Orange Red Green Blue

**OR**

**Step 3A : Select your Connector(s)**

**Driver Connector**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

COLOR CODE (circle one):

Orange Red Green Blue

**LLM Connector**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

COLOR CODE (circle one):

Orange Red Green Blue

Terminator Yes P/N \_\_\_\_\_ No \_\_\_\_\_

**AND**

**Step 3B : Select your Ribbon Cable**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

COLOR CODE (circle one):

Orange Red Green Blue

**AND**

**Step 3C : Select your Hand Tool**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

**Step 4 : Select your Thermal Management**

**Heat Sinks**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

**Thermal Test Tools**

Thermal Test Instrument \_\_\_\_\_

Thermal LLM \_\_\_\_\_

**Step 5 : Select your Optional Products**

**Replaceable Optics**

Part Number: \_\_\_\_\_ QTY: \_\_\_\_\_

**Design Kits**

Part Number: \_\_\_\_\_

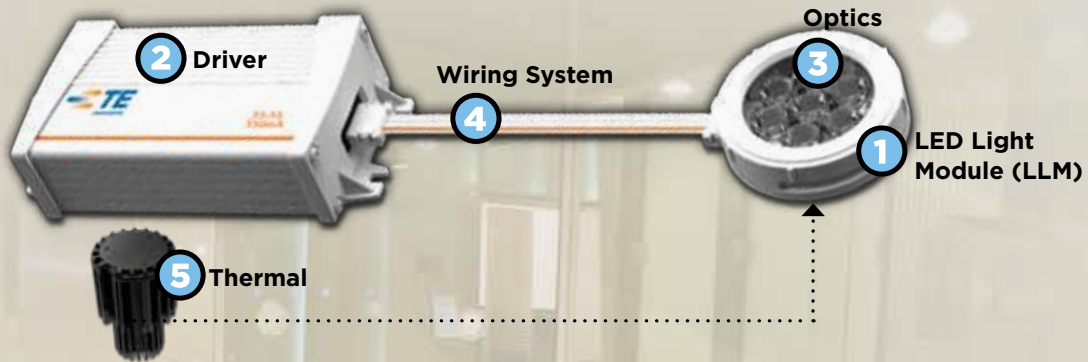
## Building your NEVALO SSL System

There are two parts to the NEVALO SSL System -- the products and the tools. The products will provide flexibility of choice for your applications. The tools will allow you to rapidly verify your system performance.

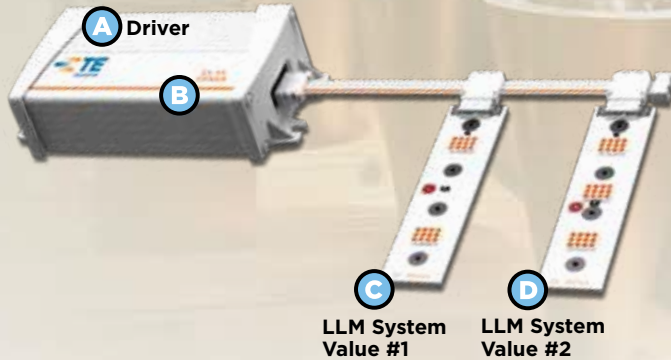
The configuration guide allows you to quickly and easily select all the components required to build your system.

Get started by selecting an LED Light Module, by Lumen output, Color Temperature and Beam Angle.

**The complete NEVALO SSL System :** Our NEVALO SSL System modules are designed as building blocks



**System budget :** The SSL system budget simplifies fixture design and decreases opportunities for errors. Color coding confirms that the right subassemblies have been chosen. As you build your system, you simply check that the color codes match and that the total LLM budget is within the specific driver’s range.



### Budget Calculation Example

<b>B</b> Driver Budget Range	(33-55)
<b>C</b> LLM #1	22
<b>D</b> LLM #2	33
<b>TOTAL =</b>	<b>55</b>
The total must be equal to or fall between the Driver Budget Range.  System is good	

**Thermal monitor :** An evaluation tool is provided to confirm the thermal performance of every LLM in your fixture design. The evaluation tool includes PC software plus a thermal test board matching the production version of the LLM.

Thermal Monitor Testing Software



Thermal LLM



Break Out Box



# Light Type Comparison Charts

## Incandescent Floodlights/Spots

Code	W	Lumens
50R20	50	380
50ER30	50	400
65BR30	65	635
75ER30	75	650
120BR40	120	1300
120ER40	120	1190

## Halogen Floodlights/Spots

Code	W	Lumens
45PAR38	45	530
50PAR20	50	520
50PAR30	50	630
60PAR38	60	800
75PAR30	75	1050
90PAR38	90	1350

## CFL

Code	W	Lumens
12R20	12	450
16R30	16	630
20PAR38	20	940

## CDMH

Code	W	Lumens
25PAR38	25	850
70PAR30	70	4100
100PAR28	100	6200

## MR-16 Lamp data

ANSI Code	W	Lumens
ESX	20	290
BAB	20	290
FRB	35	540
FRA	35	540
FMW	35	540
EXT	50	800
EXZ	50	800
EXN	50	800
FNV	50	800
FPA	65	1100
FPC	65	1100
FPB	65	1100
EYF	75	1320
EYJ	75	1320
EYC	75	1320

## Warranty

TE will warrant the NEVALO SSL System for a period of 5 years.  
For complete warranty details, please visit our website at [nevalo.com](http://nevalo.com).

[nevalo.com](http://nevalo.com)  
1-855-638-2561

[te.com](http://te.com)

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